UNITED STATES PATENT AND TRADEMARK OFFICE

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/725,772	12/01/2003	Luis Serra	57450/1141	3809

35743	7590	11/03/2006

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EXAMINER
NGUYEN, PHU K

ART UNIT	PAPER NUMBER
2628	

DATE MAILED: 11/03/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

	Application No.	Applicant(s)
Office Action Summary	10/725,772	SERRA, LUIS
	Examiner	Art Unit
	Phu K. Nguyen	2628

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>05 June 2006</u>.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-28</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>1-28</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

PHU K. NGUYEN
PRIMARY EXAMINER
GROUP 2300

Attachment(s)
1)☐ Notice of References Cited (PTO-892)
2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3)☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.
5)☐ Notice of Informal Patent Application
6)☐ Other: _____.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public
use or on sale in this country, more than one year prior to the date of application for patent in the United
States.

Claims 1-28 are rejected under 35 U.S.C. 102(b) as being anticipated by

ROCKRO et al. (Planning and Simulation of Neurosurgery in a Virtual Reality

Environment).

As per claim 1, Rockro teaches the claimed "method of displaying 3D data",

comprising: "subdividing a 3D display region into two or more display subregions"

(Rockro, page 123, column 2, section Segmentation; and page 126, figure 6 shows an

example of subdivisions of tumor, sinus, and cerebral arteries); "assigning a set of

display rules to each display subregion" (Rockro, page 124, column 1; section

Visualization; and page 126, figure 6 shows the different colors assigned to tumor,

sinus, and cerebral arteries); "displaying part or all of a 3D data set in each display

subregion according to the rules assigned to that display subregion" (Rockro, page 126,

figure 6 shows the blue tumor, pink sinus, and red arteries).

Claim 2 adds into claim 1 "the 3D data set displayed in each display subregion is

the same, but the display rules are different" (Rockro, for marking purpose, the voxels

are painted and changed to different colors; page 125, column 1).

Claim 3 adds into claim 1 "the 3D data set displayed in each display subregion is

unique to that display subregion" (Rockro, Data Registration, page 122, column 2; the

data is registered uniquely for each display subregion).

Claim 4 adds into claim 3 "the 3D data sets displayed in each display subregion

are 3D scans of a human or animal body or portion thereof using different sensing

modalities" (Rockro, the fusion of CT, MRI data sets; page 123, column 1).

Claim 5 adds into claim 4 "said sensing modalities comprise one or more of CT,

MR, PET, SPECT and US" (Rockro, the fusion of CT, MRI data sets; page 123, col. 1).

Claim 6 adds into claim 1 "the display subregions comprise volumes, 2D

surfaces, and points" (Rockro, the displayed 3D objects comprising 3D volume, 2D

slice, or points; page 124, figures 3-4).

Claim 7 adds into claim 1 "the 3D display region is a rectangular crop box"

(Rockro, the cut, crop, clip tools; page 124, column 1, section Surgical Planning).

Claim 8 adds into claim 7 "the display region is divided into two display

subregions whose mutual boundary is a plane" (Rockro, the side plans of the box

divides the object into individual segments; page 128, figure 7).

Claim 9 adds into claim 1 "a user can define one or more boundary planes that

divide the display region into two or more display subregions" (Rockro, the cut or clip

tool; page 124, column 1, section Surgical Planning).

Claim 10 adds into claim 9 "the boundary planes are parallel to one or more

surfaces of the display region" (Rockro, the processed object is displayed with any

orientation according to its rotation; page 124, column 1, or page 125, column 1).

Claim 11 adds into claim 1 "the boundaries of the display subregions and the set

of display rules for each display subregion are defined by a user" (Rockro, the user

manipulation of object's color; page 124, column 1, section: visualization).

Claim 12 adds into claim 11 "the boundaries of the display subregions and the

set of display rules for each display subregion are defined by system defaults which can

be modified by a user" (Rockro, Restoration/Modification of the default original color;

page 125, column 1).

Claim 13 adds into claim 1 "the boundaries of the display subregions may be

varied by a user during the display, such that points in a 3D data set now located in a

new display subregion are displayed according to the corresponding new display rules

in substantially real time as the boundaries change" (Rockro, page 124, column 1 to

page 125, column 1; section Visualization and Surgical Planning).

Claim 14 adds into claim 13 "said variation of the boundaries of display subregions includes one or more of translation, rotation, scaling, shear, linear warping or non-linear warping" (Rockro, page 124, column 1 to page 125, column 1; section Visualization and Surgical Planning includes the object manipulations).

Claim 15 adds into claim 1 "all points in the display region associated with a given display subregion need not be contiguous" (Rockro, the example of bone removal displays two separate parts of the surgery bone; page 125, column 2).

Claim 16 adds into claim 11 "a user defines or modifies said boundaries and/or display rules via an interactive object within the display" (Rockro, page 124, column 1 to page 125, column 1; section Visualization and Surgical Planning includes the object manipulations).

Claim 17 adds into claim 12 "a user defines or modifies said boundaries and/or display rules via an interactive object within the display" (Rockro, page 124, column 1 to page 125, column 1; section Visualization and Surgical Planning includes the object manipulations).

Claim 18 adds into claim 11 "a user defines or modifies said boundaries and/or

display rules via a mouse, trackball, joystick or other spatial 2D input peripheral"

(Rockro, the 2D interface in page 119, column 1 or the virtual stylus in figure 1 page 122

and figure 2, page 123).

Claim 19 adds into claim 12 "a user defines or modifies said boundaries and/or

display rules via a mouse, trackball, joystick or other spatial 2D input peripheral"

(Rockro, the 2D interface in page 119, column 1 or the virtual stylus in figure 1 page 122

and figure 2, page 123).

Claim 20 adds into claim 1 "the 3D data set displayed in each display subregion

is stored as one of volume raster data or geometric constructs" (Rockro, page 122,

column 1, section Data Loading).

Claims 21-22 claim a computer program based on the method of claims 1-20;

therefore, they are rejected under the same reason.

Claim 23 adds into claim 1 "one or more 3D data sets are displayed in each

display subregion" (Rockro, the Fusion of CT and MRI image data; page 123, col. 1).

Claim 24 adds into claim 1 "the same 3D data set is displayed to each display

subregion" (Rockro, the display data is rendered from one or more data set).

As per claim 25, Rockro teaches the claimed "method of displaying 3D data in a

3D display system", comprising: "loading one or more 3D data sets into a 3D display

system" (Rockro, data loading; page 122, column 1); "subdividing a 3D display region

into two or more display subregions" (Rockro, page 123, column 2, section

Segmentation; and page 126, figure 6 shows an example of subdivisions of tumor,

sinus, and cerebral arteries); "assigning one or more 3D data sets to each display

subregion; assigning a set of display rules to each display subregion" (Rockro, page

124, column 1; section Visualization; and page 126, figure 6 shows the different colors

assigned to tumor, sinus, and cerebral arteries); "displaying visible portions of a 3D data

set in each display subregion according to the rules assigned to that display subregion"

(Rockro, page 126, figure 6 shows the blue tumor, pink sinus, and red arteries).

Claim 26 adds into claim 25 "one of the 3D data sets is displayed in each display

subregion" (Rockro, the Fusion of CT and MRI image data; page 123, col. 1).

Claim 27 adds into claim 25 "only one 3D data set is displayed in each display

subregion" (Rockro, the display data is rendered from one or more data set).

Claim 28 adds into claim 3 "the 3D data sets displayed in each display region are

surface renderings of polygonal data sets" (Rockro, skin surface of the MRI medical object; page 124, column 2).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Phu K. Nguyen whose telephone number is (571) 272 7645. The examiner can normally be reached on M-F 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Razavi can be reached on (571) 272 7664. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Phu K. Nguyen
October 26, 2006

PHU K. NGUYEN
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